

(12)

Europäisches Patentamt European Patent Office Office européen des brevets



EP 1 113 533 A3 (11)

EUROPEAN PATENT APPLICATION

(88) Date of publication A3:

(51) Int CI.7: H01R 13/193 01.12.2004 Bulletin 2004/49

(43) Date of publication A2: 04.07.2001 Bulletin 2001/27

(21) Application number: 00118667.5

(22) Date of filing: 29.08.2000

(84) Designated Contracting States: AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE **Designated Extension States:** AL LT LV MK RO SI

(30) Priority: 28.12.1999 JP 37573499

(71) Applicant: J.S.T. Mfg. Co., Ltd. Osaka-shi, Osaka 542-0081 (JP)

(72) Inventors:

· Yasufuku, Kaori, J.S.T. Manfacturing Co., Ltd. Kohoku-ku, Yokohama, Kanagawa 222-0001 (JP)

- Hosaka, Taiji, J.S.T. Manfacturing Co., Ltd. Kohoku-ku, Yokohama, Kanagawa 222-0001 (JP)
- Miyazawa, Masaaki, J.S.T. Manfacturing Co., Ltd. Kohoku-ku, Yokohama, Kanagawa 222-0001 (JP)
- (74) Representative: Hering, Hartmut, Dipl.-Ing. Patentanwälte Berendt, Leyh & Hering **Innere Wiener Strasse 20** 81667 München (DE)

(54)Cap and low insertion force connector for printed circuit board

A cap (200) that is to be fitted to a printed circuit board (100), which has a conductive pad (130) on the front side (111) of the rectangular board (110) thereof and which is to be connected to the connector (300). The cap (200) is formed into a bag and is shaped into a wedge that gets thinner towards the front, and the cap (200) has a window (230) for exposing the conductive pad (130) of the printed circuit board (100).

A low insertion force connector (400) that connects a printed circuit board (100) having conductive pads (130) on the front side (111) of the rectangular board (110) thereof. This low insertion force connector (400) comprises a connector body (410) having at least a pair of contacts (412a)(412b) that contact the conductive pads (130) and clamp the printed circuit board (100), a slider (420) that carries the printed circuit board (100) and advances to and retreats from the contacts (412a) (412b), and a guide (500) that is provided at the front end of the slider (420) and is formed into a wedgeshape, which gets thinner towards the front.

The present invention reduces the insertion force of the printed circuit board (100), enhances the connection workability, and eliminates damages or the like to the contacts and the conductive pad (130) to enhance the reliability. The present invention provides a connector (400) that is also effective in countermeasures against heat and electromagnetic waves.

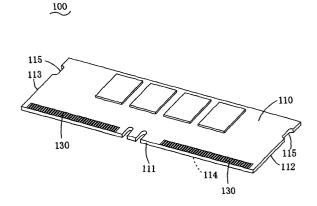
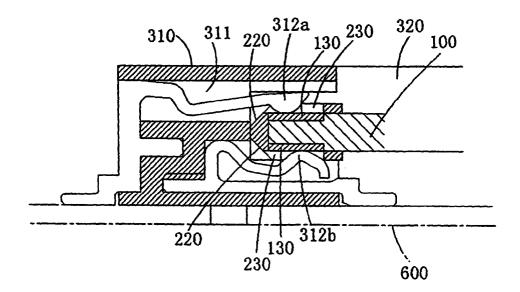


FIG. 2

FIG. 6B





EUROPEAN SEARCH REPORT

Application Number EP 00 11 8667

Category	Citation of document with indication	on, where appropriate,	Relevant	CLASSIFICATION OF THE APPLICATION (Int.CI.7)		
х	us 4 806 103 A (KNIESE 21 February 1989 (1989- * column 2, line 37 - c	02-21)	to claim	H01R13/193		
Х	GB 1 564 928 A (FERRANT 16 April 1980 (1980-04- * page 1, line 91 - pag	16)	3			
X	US 4 298 237 A (SHERMAN 3 November 1981 (1981-1 * column 3, line 41 - c	1-03)	1,2			
A	US 5 757 622 A (YAMAGIS AL) 26 May 1998 (1998-0					
				TECHNICAL FIELDS		
				SEARCHED (Int.CI.7)		
	The present search report has been d	rawn up for all claims				
	Place of search	Date of completion of the search		Examiner		
	The Hague	7 October 2004	Ber	tin, M		
CATEGORY OF CITED DOCUMENTS X: particularly relevant if taken alone Y: particularly relevant if combined with another document of the same category		E : earlier patent d after the filing o D : document cited L : document cited	T: theory or principle underlying the inventit E: earlier patent document, but published of after the filing date D: document cited in the application L: document cited for other reasons			
A : technological background O : non-written disclosure P : intermediate document			&: member of the same patent family, corresponding document			

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO.

EP 00 11 8667

This annex lists the patent family members relating to the patent documents cited in the above–mentioned European search report. The members are as contained in the European Patent Office EDP file on The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-10-2004

	Patent document ed in search report		Publication date		Patent family member(s)	Publication date
บร	4806103	Α	21-02-1989	EP DE	0282622 3760698	 21-09-1988 09-11-1989
GB	1564928	A	16-04-1980	DE FR	2732487 2359565	 26-01-1978 17-02-1978
US	4298237	Α	03-11-1981	NONE		
US	5757622	Α	26-05-1998	JP JP	3357254 10144420	 16-12-2002 29-05-1998

FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82